

ICF-111L



FM-MW-LW PORTABLE RADIO

SPECIFICATIONS

Circuit System:	10-transistor 1-FET 1-IC 6-diode superheterodyne 1-transistor, 1-diode (SLED) for auxiliary circuit	Power Output at 10 % distortion: 700 mW maximum: 1.1W
Frequency Coverage:	FM 87.5~108 MHz (3.42~2.78m) LW 150~400 kHz (2,000~750m) MW 530~1,605 kHz (566~187m)	Current Drain at zero signal: FM 30 mA, LW/MW 25 mA at 10 % distortion: 340 mA
Intermediate Frequency:	FM 10.7 MHz LW/MW 455 kHz	Power Requirement: Three "C" size flashlight batteries 4.5V in total
Antenna System:	FM built-in telescopic antenna LW/MW built-in ferrite bar antenna	Speaker: 9.2 cm (3½") dia. PM dynamic, 8Ω
Sensitivity at 50 mW output:	FM 2.2 μV (7 dB) at S/N 30 dB LW 250 μV/m (48 dB/m) MW 80 μV/m (38 dB/m)	Dimensions: 214 mm(W) x 178 mm(H) x 56 mm(D) (8⅞" x 7" x 2⅜")
Selectivity at ±10 kHz off resonance:	40 dB at 1,400 kHz	Weight: 1.3 kg (2 lb 14 oz)

SONY
SERVICE MANUAL

TABLE OF CONTENTS

<u>Section</u>	<u>Title</u>	<u>Page</u>
	Specifications	1
1.	OUTLINE	2
1-1.	External View	2
1-2.	Internal View	3
1-3.	Block Diagram	3
1-4.	Resonance Indicating Circuit	3
2.	DISASSEMBLY	4
2-1.	Rear Cabinet Removal	4
2-2.	Chassis Removal	4
2-3.	Circuit Board Removal	4
2-4.	Resonance Indicating Circuit Board Removal	5
2-5.	Dial Cord Stringing	6
3.	CIRCUIT ADJUSTMENTS	7
3-1.	Fm I-f Alignment	7
3-2.	A-m I-f Alignment	7
3-3.	Frequency Coverage and Tracking Adjustment	8
3-4.	Current Adjustment	9
4.	SCHEMATIC AND MOUNTING DIAGRAMS	11
4-1.	Schematic Diagram	11
4-2.	Mounting Diagram - Main Circuit Board -	13
4-3.	Mounting Diagram - Resonance Indicating Circuit Board -	17
5.	PACKING AND EXPLODED VIEW	18
5-1.	Packing	18
5-2.	Exploded View (1)	19
5-3.	Exploded View (2)	21
6.	ELECTRICAL PARTS LIST	23

SECTION 1 OUTLINE

1-1. EXTERNAL VIEW

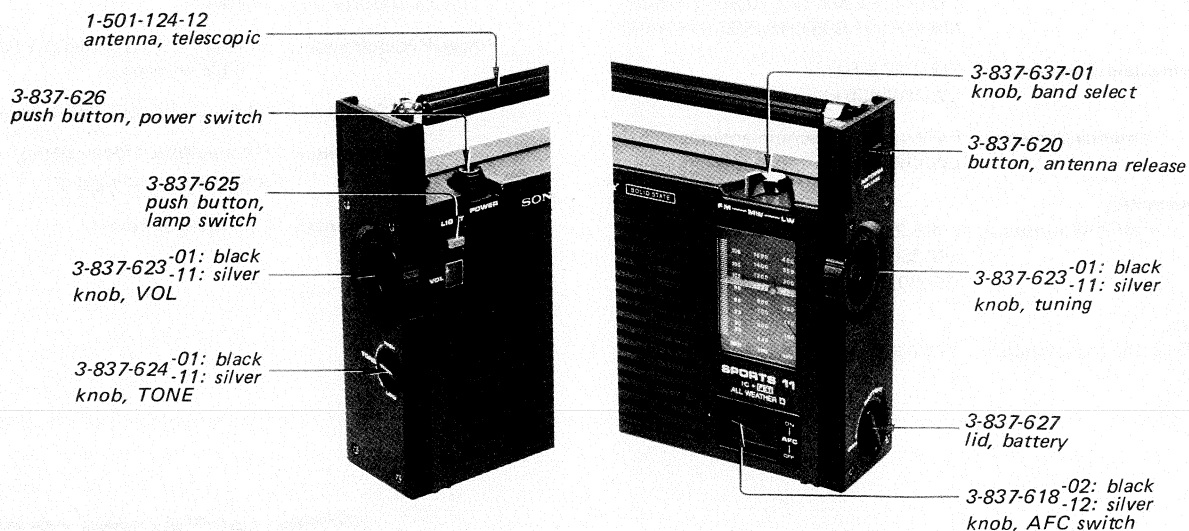


Fig. 1-1.

1-2. INTERNAL VIEW

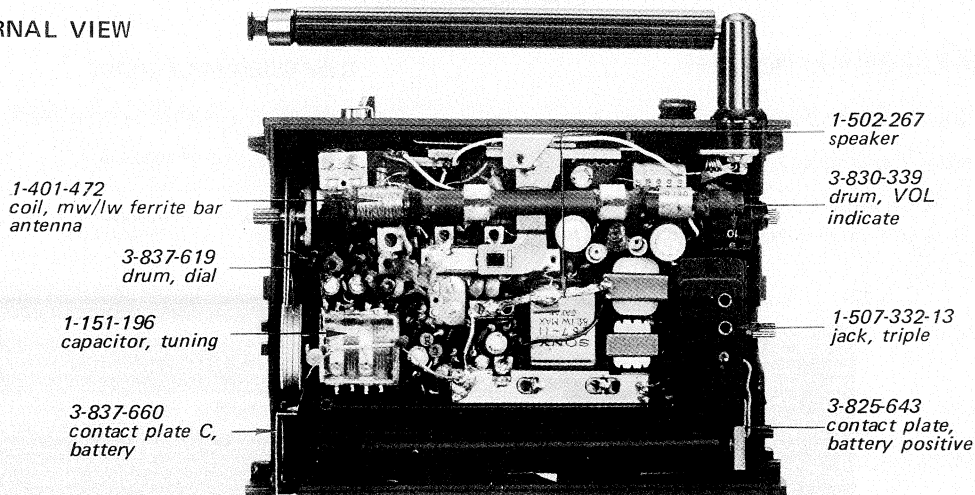


Fig. 1-2.

1-3. BLOCK DIAGRAM

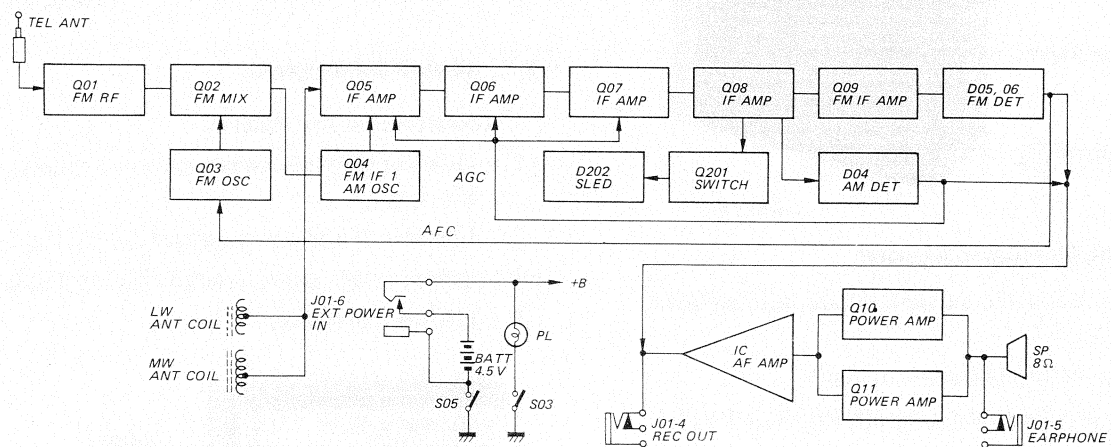


Fig. 1-3.

1-4. RESONANCE INDICATING CIRCUIT

The model ICF-111L resonance indicating circuit uses the SLED (SONY Light Emitting Diode).

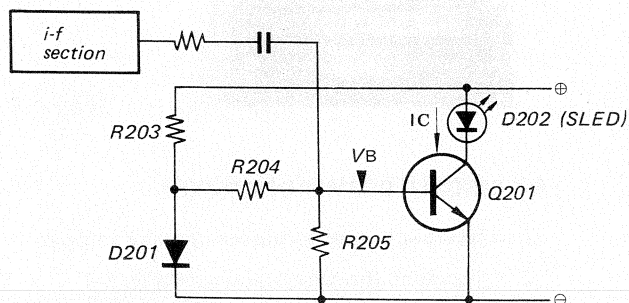


Fig. 1-4.

The circuit is shown in Fig. 1-4. Resistors R203, R204, R205, and diode D201 keep a constant bias voltage (VB) on the base of Q201. The bias is set at the cut-off point of Q201. Here, D201 stabilizes the bias against a variation in source voltage or temperature.

ZERO collector current flows at no input signal, but the transistor has a high sensitivity to an input signal. When an i-f signal (of 455 kHz or 10.7 MHz) is added to the base, collector current flows in proportion to the signal strength. Thus, the SLED (D202) is illuminated by the collector current.

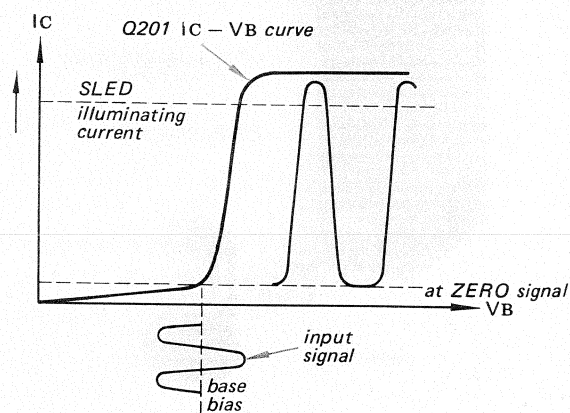


Fig. 1-5.

SECTION 2 DISASSEMBLY

2-1. REAR CABINET REMOVAL

Left Side Cover Removal

1. Remove the four screws labeled (A) in Fig. 2-1.
2. Pull out the left side cover along with the VOL knob and TONE knob as shown in Fig. 2-1.

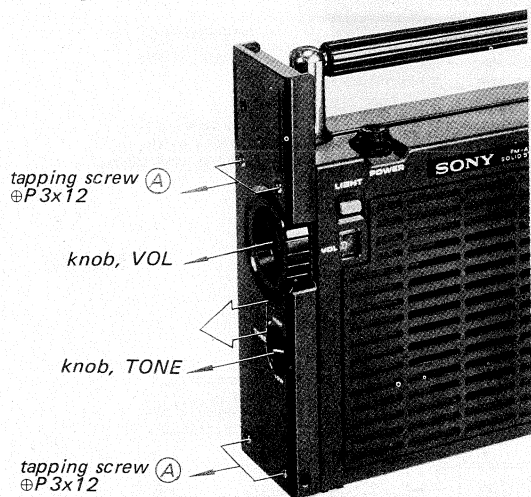


Fig. 2-1.

Right Side Cover Removal

3. Press down the antenna release button shown in Fig. 2-2.
4. Pull out the telescopic antenna.
5. Remove the four screws labeled (B) in Fig. 2-2.
6. Pull out the right side cover with the tuning knob and battery lid as shown in Fig. 2-2.

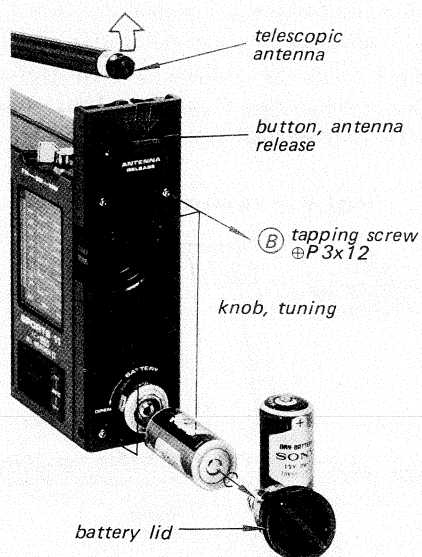


Fig. 2-2.

Rear Cabinet Removal

7. Remove the three screws labeled (C) in Fig. 2-3.
8. Lift up the rear cabinet.

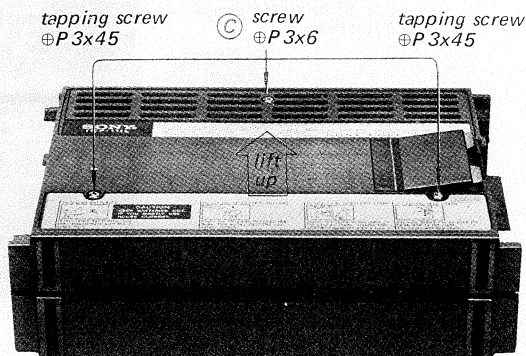


Fig. 2-3.

2-2. CHASSIS REMOVAL

1. Remove the rear cabinet.
2. Push the POWER switch button as shown in Fig. 2-4.
3. Unsolder the pvc wire labeled (D) in Fig. 2-4.
4. Remove the screw labeled (E) in Fig. 2-4.
5. Lift up the chassis.

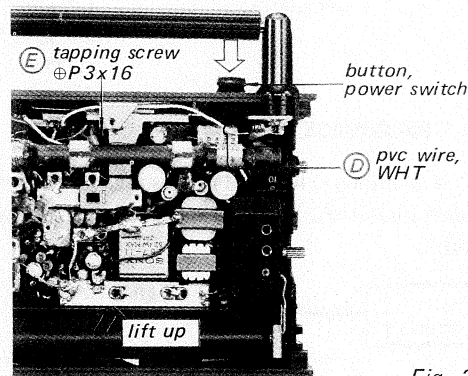
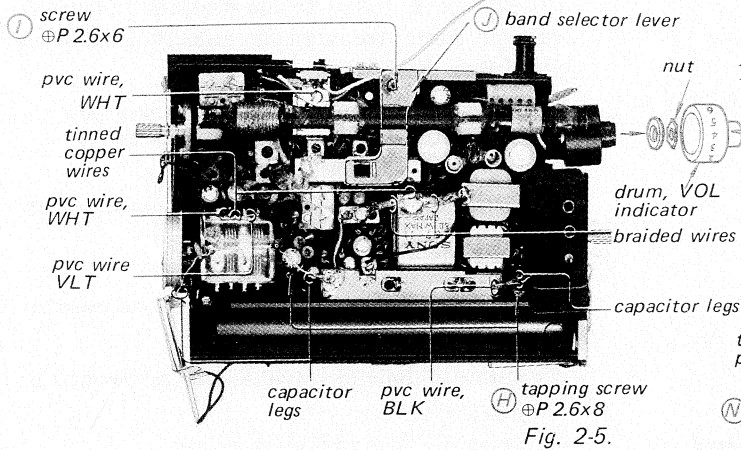


Fig. 2-4.

2-3. CIRCUIT BOARD REMOVAL

1. Remove the rear cabinet and the chassis.
2. Unsolder the wires shown in Fig. 2-5.
 - a) four pvc wires (BLK, WHT, VLT and WHT)
 - b) two tinned copper wires
 - c) two braided wires
3. Remove the two screws labeled (H) in Fig. 2-5.
4. Remove the screw labeled (I) and the band selector lever labeled (J).

- Remove the VOL indicator drum and nut in Fig. 2-5.



- Remove the speaker as shown in Fig. 2-6 and unsolder the two speaker leads.

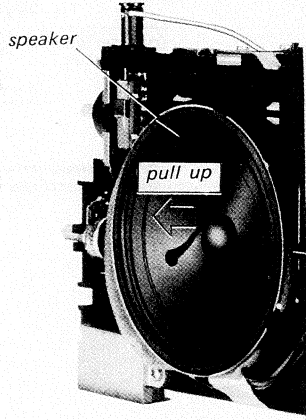


Fig. 2-6.

- Push the back plate by a stick as shown in Fig. 2-7 and remove the back plate.

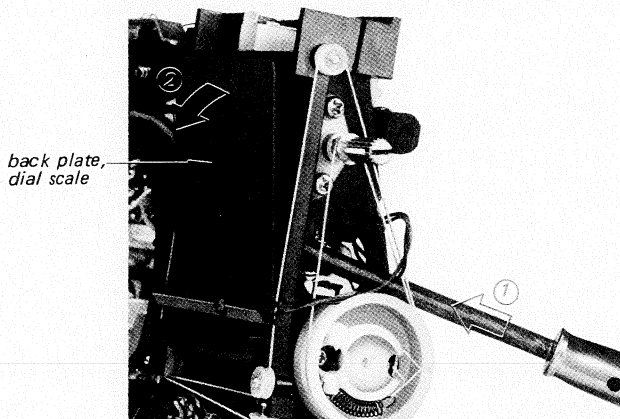


Fig. 2-7.

- Unsolder the nine wires labeled (N) in Fig. 2-8.
- Pull out the TONE control shown in Fig. 2-8.
- Push down the circuit board squeezing the bar antenna holder.

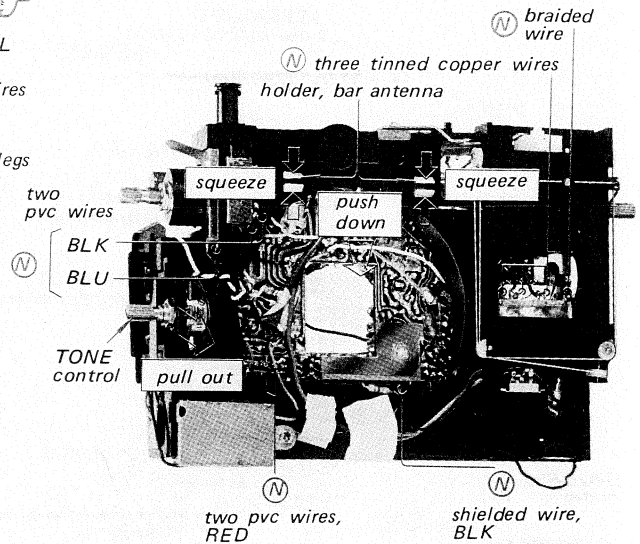


Fig. 2-8.

24. RESONANCE INDICATING CIRCUIT BOARD REMOVAL

- Remove the screw labeled (L) in Fig. 2-9.
- Unsolder the three soldered portions labeled (M) on the shield case.

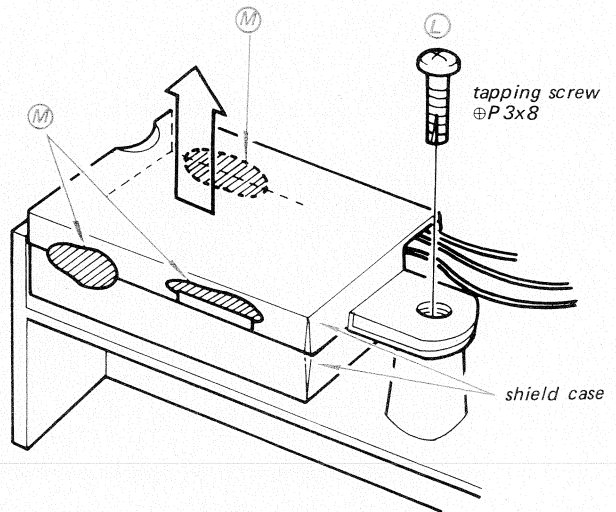


Fig. 2-9.

25. DIAL CORD STRINGING

Preparation

1. Remove the chassis.
2. Cut the dial cord by the specified length as shown in Fig. 2-10.

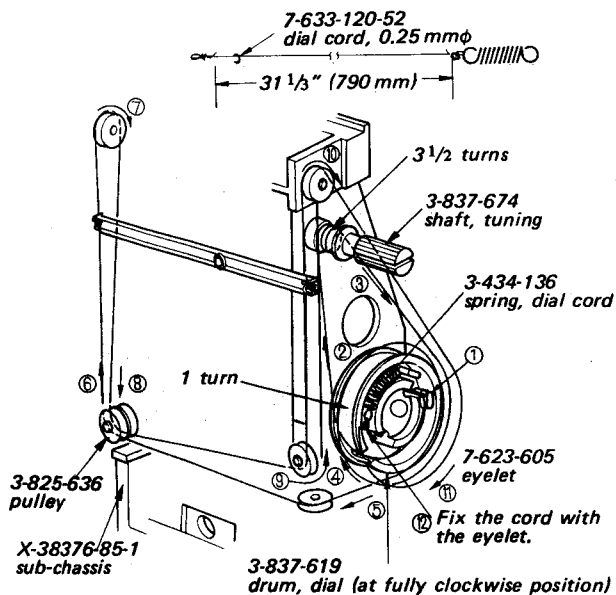


Fig. 2-10.

Stringing

1. Fix the dial cord to the protrusion (step ①) and string the cord in numerical order as shown in Fig. 2-10.

Note: Pass through the dial cord at step ④ between the two cords of steps ② and ③ as shown in Fig. 2-11.

2. Fasten the both knots with a contact cement.

Pointer Setting

1. Rotate the tuning shaft counterclockwise to the full.
2. Set the pointer to the slit as shown in Fig. 2-11.

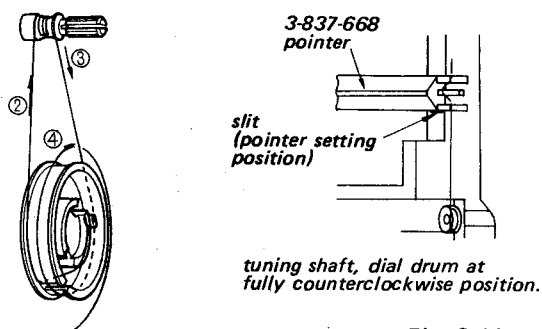


Fig. 2-11.

SECTION 3 CIRCUIT ADJUSTMENTS

3-1. FM IF ALIGNMENT

Test Equipment/Tools Required:

- * 10.7 MHz sweep/marker generator
- * Oscilloscope
- * 0.01 μ F ceramic capacitor
- * Screwdriver for alignment

Preparation:

1. Sweep/marker Generator Connection:
Across the tuning capacitor as shown in Fig. 3-1.
2. Oscilloscope Connection: Record out jack.
3. Sweep Generator Center Frequency: 10.7 MHz
4. Marker Generator Frequency: 10.7 MHz
5. Band Selector: FM
6. VOL Control: Fully clockwise
7. TONE Control: HIGH
8. AFC Switch: OFF

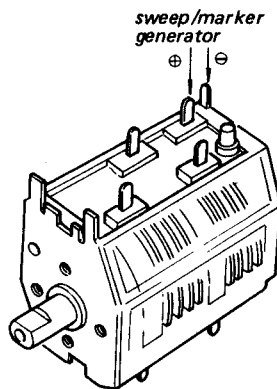


Fig. 3-1. Sweep/marker generator connection

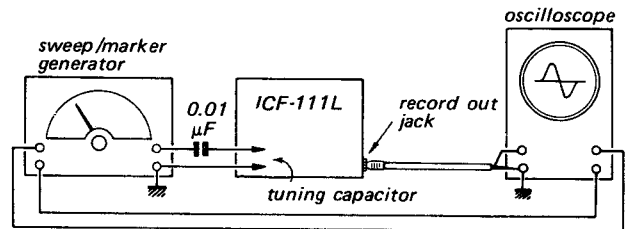


Fig. 3-2. Fm i-f alignment setup

Procedure:

1. Turn the core of discriminator transformer (IFT F5) fully counterclockwise.
2. Turn the core of fm i-f transformer (IFT F1, IFT F2, IFT F3) and discriminator transformer (IFT F4) to obtain the maximum amplitude response curve shown in Fig. 3-3.
3. Turn the core of discriminator transformer (IFT F5) to obtain the S curve response shown in Fig. 3-4.

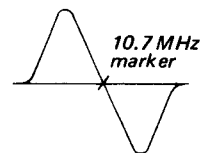
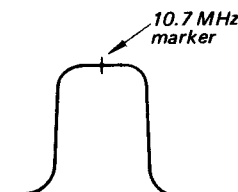


Fig. 3-3. Response curve

Fig. 3-4. "S" curve

Sweep/Marker Generator Coupling	Sweep/Marker Generator Frequency	Oscilloscope Connection	Adjust	Remarks
Across the tuning capacitor (See Fig. 3-1)	10.7 MHz	Record out jack	IFT F1 IFT F2 IFT F3 IFT F4 IFT F5	Band selector: FM AFC switch: OFF Adjust for maximum amplitude and symmetrical S curve on the scope.

3-2. AM IF ALIGNMENT

Test Equipment/Tools Required:

- * Rf signal generator (for a-m)
- * VTVM
- * Loop antenna
- * 8 Ω resistor
- * Screwdriver for alignment

Preparation:

1. Band Selector: MW
2. TONE Control: HIGH

3. VOL Control: Fully counterclockwise
4. Tuning Knob: Fully clockwise (highest frequency on dial)

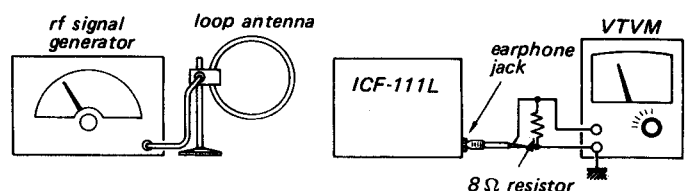


Fig. 3-5. A-m i-f alignment, frequency coverage and tracking adjustment setup

Rf Signal Generator Coupling	Rf Signal Generator Frequency	VTVM Connection	Adjust	Remarks
Loop antenna (See Fig. 3-5.)	455 kHz 1 kHz 30% a-m)	Earphone jack with 8 Ω load resistor in parallel.	IFT A1 CFT A1	Band selector: MW VOL control: Fully counterclockwise TONE control: HIGH Tuning knob: fully clockwise position Adjust for maximum meter reading.

3-3. FREQUENCY COVERAGE AND TRACKING ADJUSTMENT

Test Equipment/Tools Required:

- * Rf signal generator (for fm and a-m)
- * Loop antenna
- * VTVM
- * 8 Ω resistor
- * Screwdriver for alignment

Preparation:

VTVM Connection: To earphone jack with 8 Ω resistor in parallel.

Modulation: FM ... 400-Hz $\pm$ 22.5-kHz frequency-modulated signal
AM ... 1-kHz 30% amplitude-modulated signal

VOL Control Setting: Fully counterclockwise
TONE Control Setting: HIGH
AFC Switch: OFF

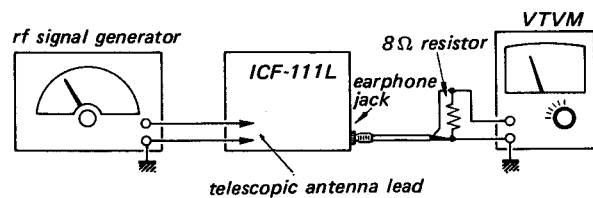


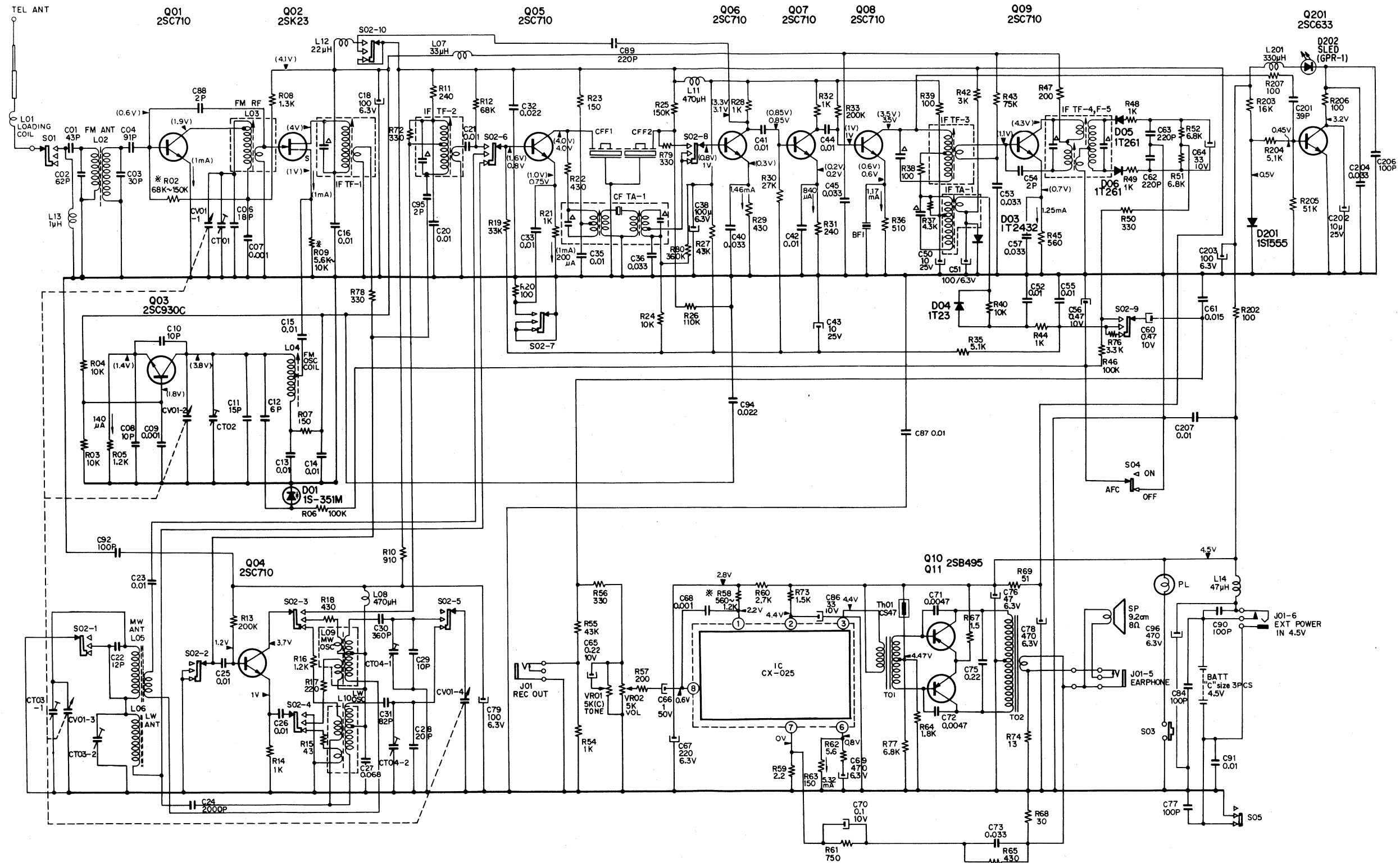
Fig. 3-6. Fm frequency coverage and tracking adjustment setup

Note: In West Germany the frequency coverage is prescribed within the range between 87.5 MHz and 108 MHz. Make the frequency coverage by adjusting osc coil (L04) and osc trimmer (CT02) with the intended frequency signal from the rf signal generator.

Adjustment	RF Signal Generator Coupling	RF Signal Generator Frequency	Receiver Tuning Knob Setting	Adjust	Remarks
FM Frequency Coverage	Direct connection to telescopic antenna lead.	86.5 MHz	Fully counterclockwise	FM osc coil L04	Band Selector: FM Adjust for maximum meter reading.
FM Tracking		109 MHz	Fully clockwise	FM osc trimmer CT02	
		86.5 MHz	Tune to 86.5-MHz signal	FM rf coil L03	
		109 MHz	Tune to 109-MHz signal	FM rf trimmer CT01	
MW Frequency Coverage	Loop antenna	520 kHz	Fully counterclockwise	MW osc coil L09	Band Selector: MW Adjust for maximum meter reading.
MW Tracking		1,680 kHz	Fully clockwise	MW osc trimmer CT04-1	
		620 kHz	Tune to 620-kHz signal	MW ant coil L05	
		1,400 kHz	Tune to 1,400-kHz signal	MW ant trimmer CT03-1	

SECTION 4 SCHEMATIC AND MOUNTING DIAGRAMS

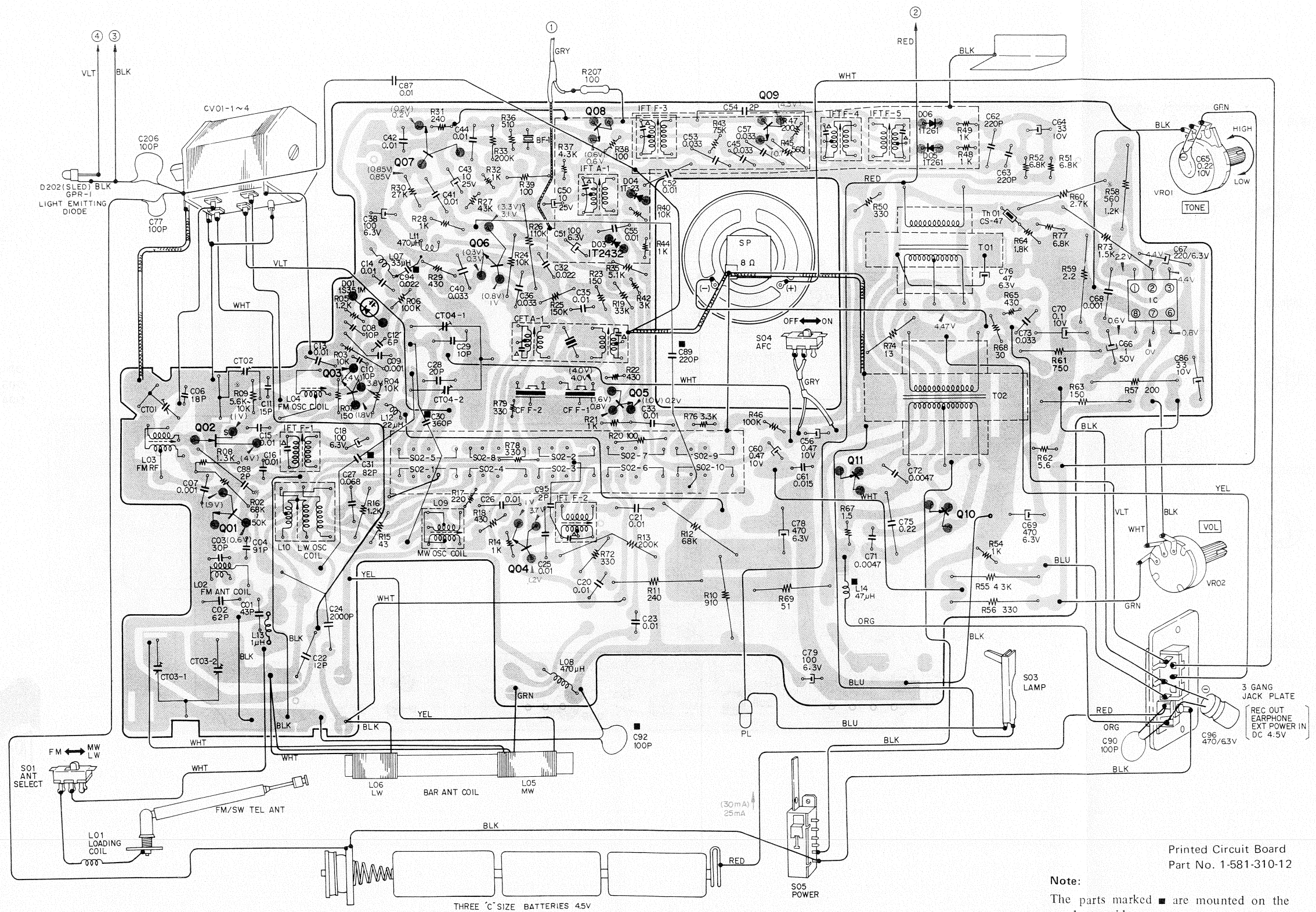
4.1. SCHEMATIC DIAGRAM



Note:

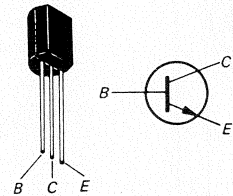
1. All resistors and capacitors are in Ω and μF unless otherwise specified.
2. Capacitors marked Δ are built in i-f transformers.
3. The symbol $\times$ indicates a component whose value is selected to yield normal operating condition.
4. Voltage values are measured from point indicated to ground circuit with a dc voltmeter (VTVM) and current values are measured with a dc ammeter. Voltage and current are measured with no radio signal received. Variations may be noted due to normal production tolerances. The values in () are measured with band selector set to FM.

4-2. MOUNTING DIAGRAM — Main Circuit Board —
— Conductor Side —

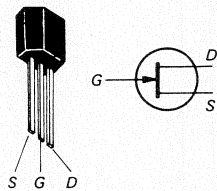


— Component Side —

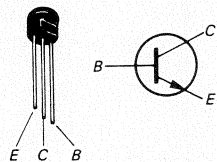
Q01, Q04~Q09: 2SC710



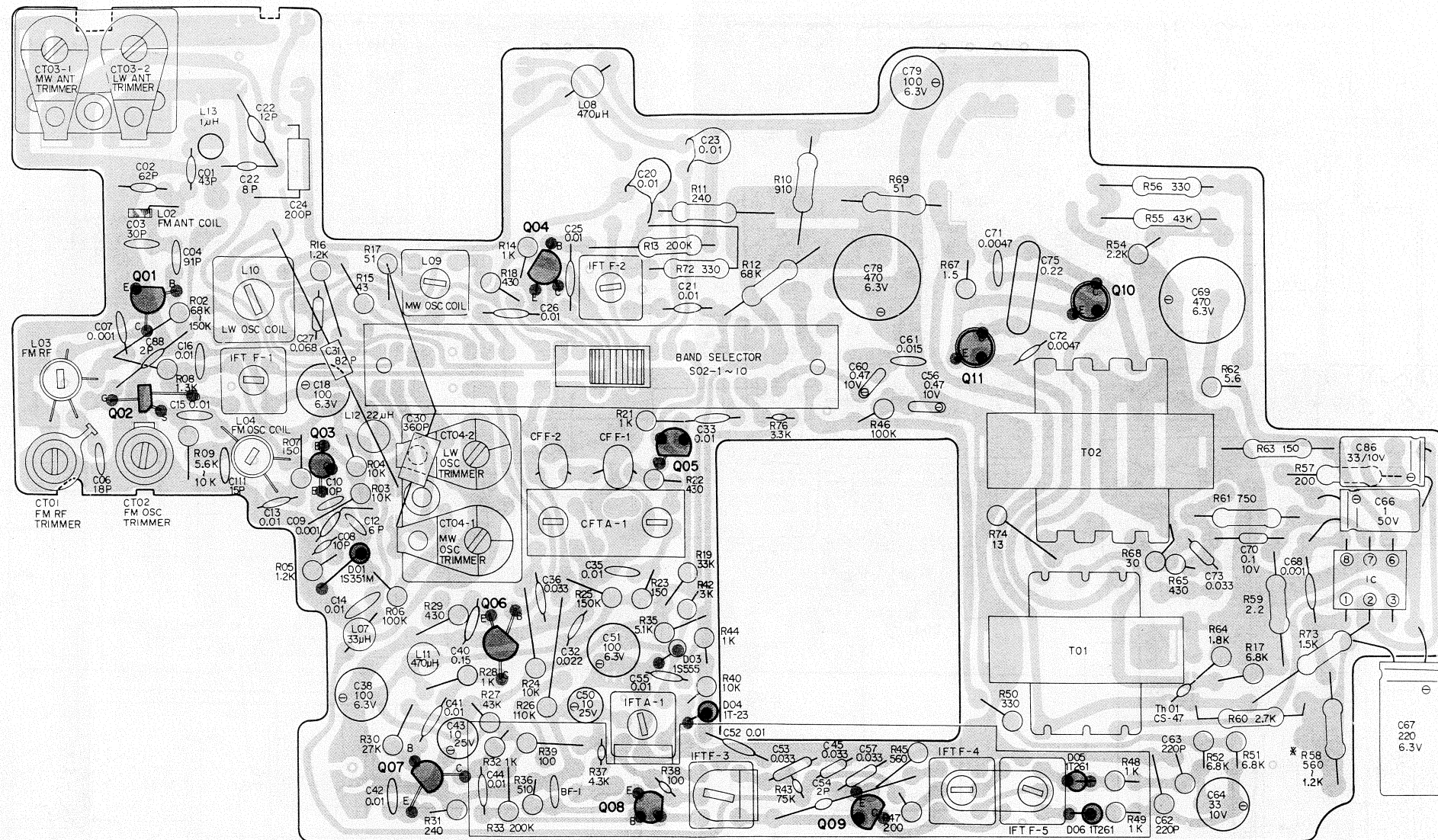
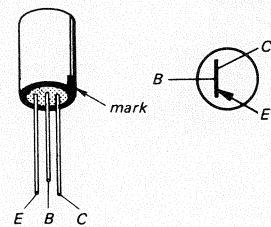
Q02: 2SK23



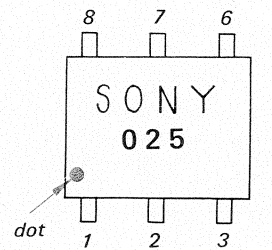
Q03: 2SC930C



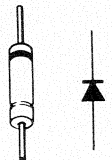
Q10, Q11: 2SB495



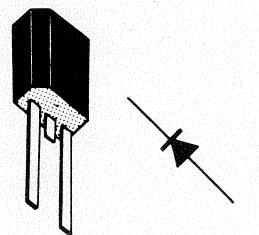
IC: CX-025



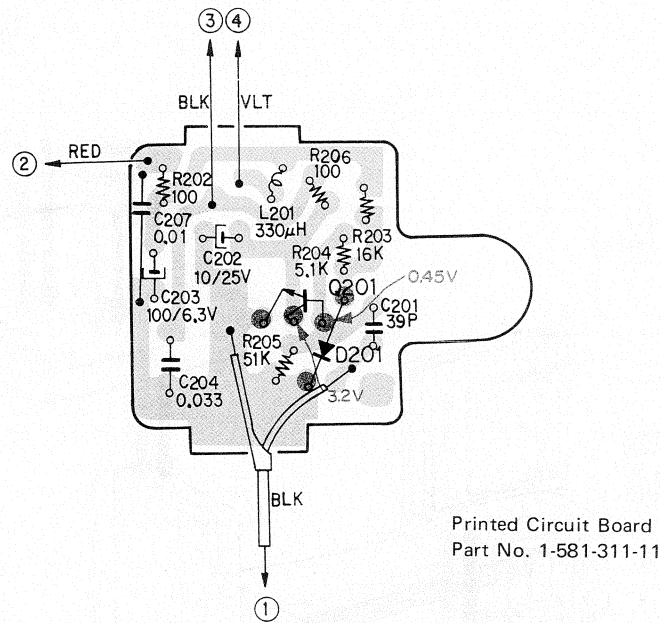
D01: 1S351M
D05, D06: 1T261
D04: 1T23



D03: 1T2432

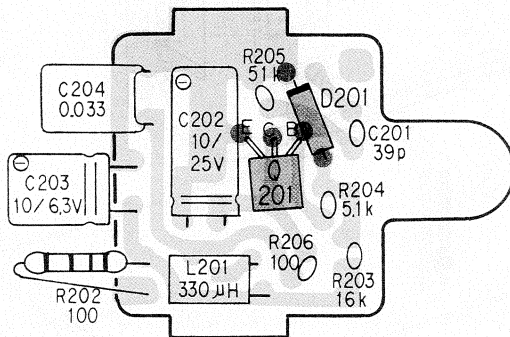


4-3. MOUNTING DIAGRAM — Resonance Indicating Circuit Board —
 — Conductor Side —



Note: C207: mounted on the conductor side.

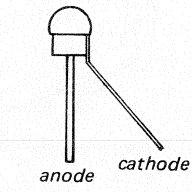
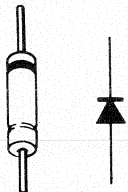
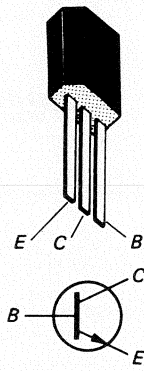
— Component Side —



Q201; 2SC633

D201; 1S1555

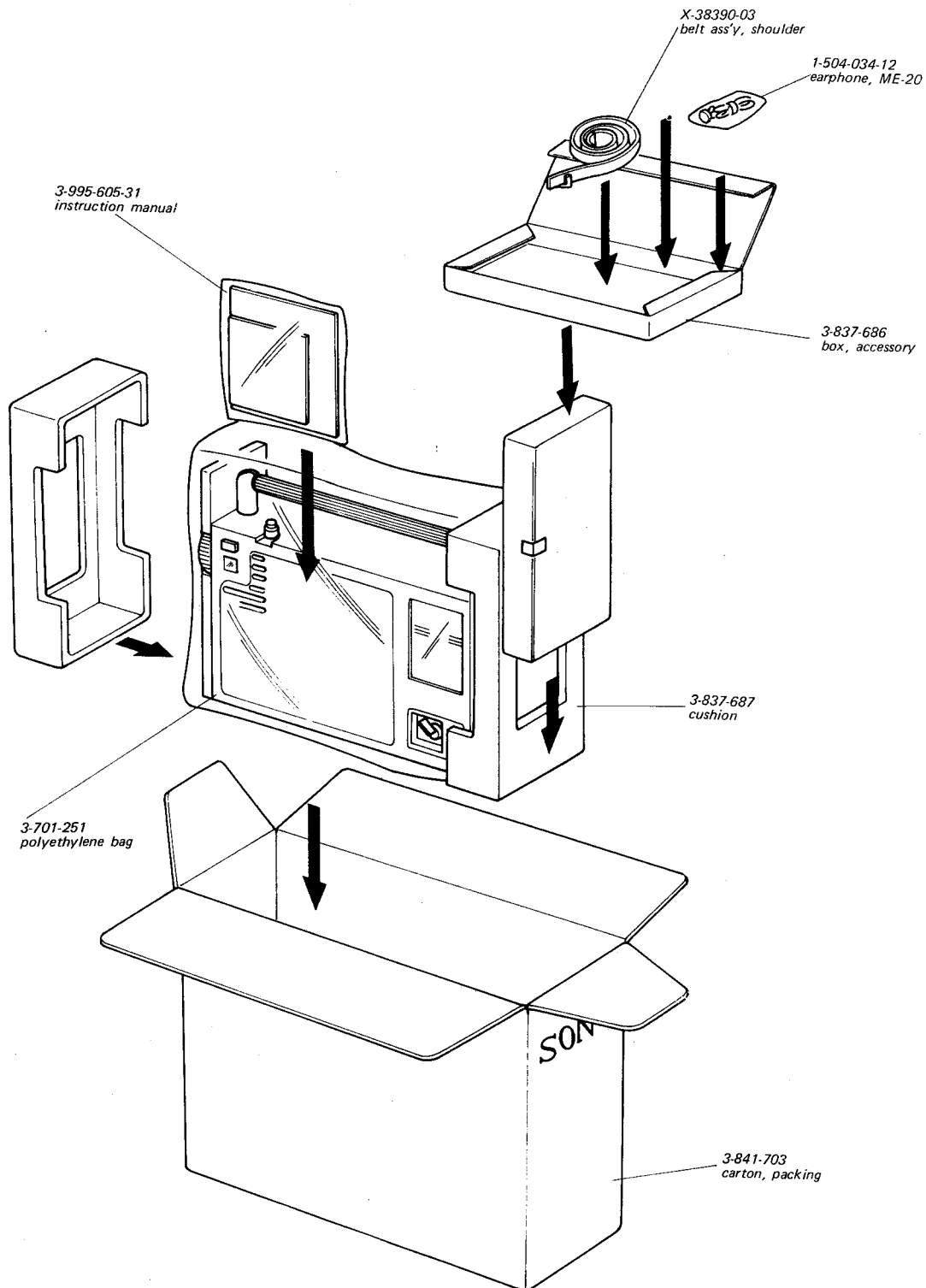
D202; GPR-1 (SLED)



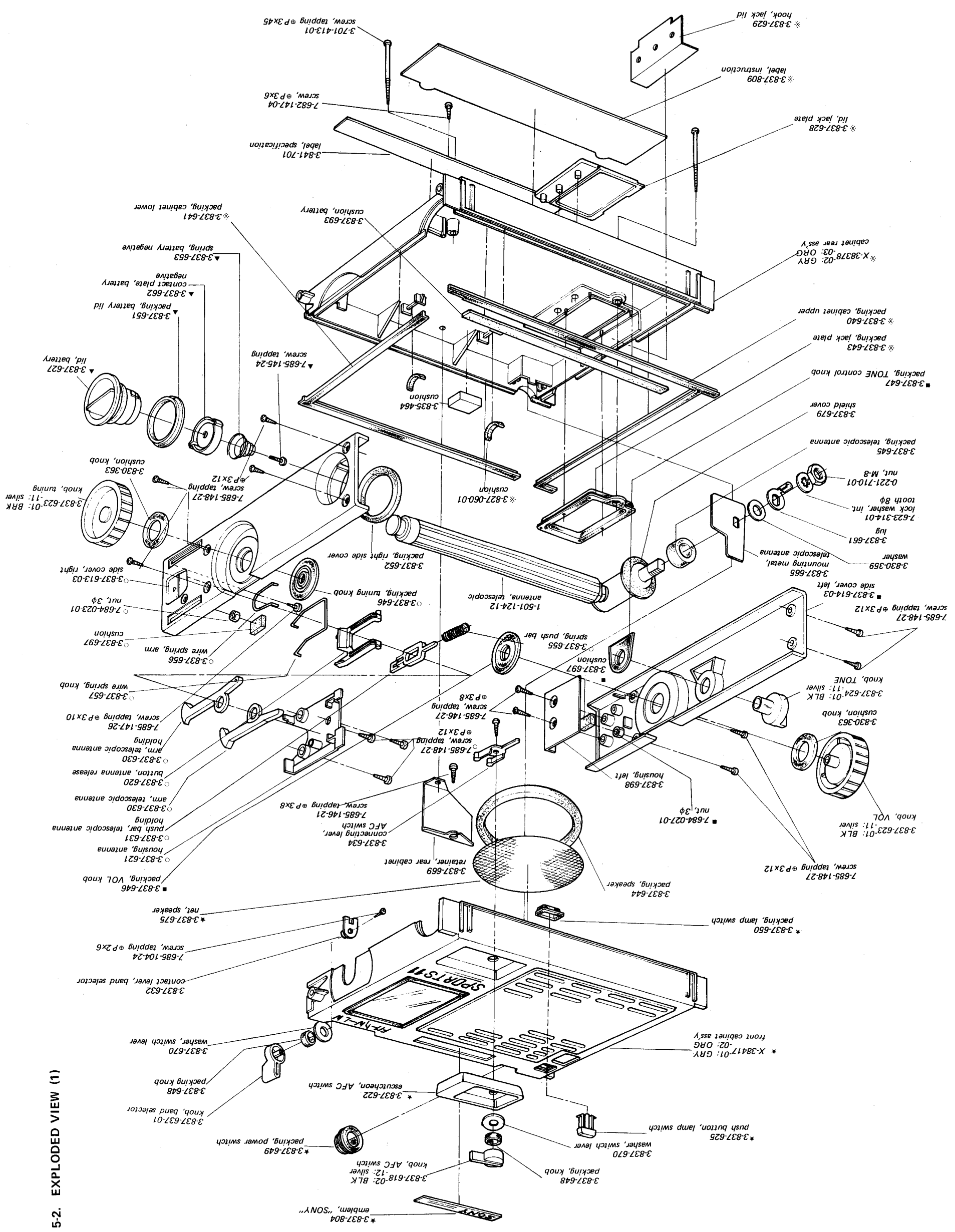
See page 13.

SECTION 5 PACKING AND EXPLODED VIEW

5-1. PACKING



Note: Parts marked * are included in front cabinet ass'y, X-38417-81-2: ORG
-1: GRN
-3: GRN
-4: GRN
-5: ORG
-8: GRN
Parts marked * are included in rear cabinet ass'y, X-38376-82-5: ORG
Parts marked * are included in right side cover ass'y, X-38376-83-1
Parts marked * are included in left side cover ass'y, X-38376-84-1
Parts marked * are included in battery lid ass'y, X-38376-86



5-2. EXPLODED VIEW (1)

ICF-111L ICF-111L

SECTION 6

ELECTRICAL PARTS LIST

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
SEMICONDUCTORS					
Q01		transistor 2SC710	CFT A1	1-403-165-15	ceramic filter, a-m i-f
Q02		transistor 2SK23	BF-1	1-403-154	ceramic filter, a-m i-f
Q03		transistor 2SC930C	CF F1	1-527-501- ¹¹ / ₁₅	ceramic filter, fm i-f
Q04		transistor 2SC710	CF F2	1-527-501- ¹¹ / ₁₅	ceramic filter, fm i-f
Q05		transistor 2SC710	T01	1-423-064-21	transformer, driver
Q06		transistor 2SC710	T02	1-427-251-12	transformer, output
Q07		transistor 2SC710	CAPACITORS		
Q08		transistor 2SC710	C01	1-102-966	43pF ceramic
Q09		transistor 2SC710	C02	1-101-886	62pF ceramic
Q10		transistor 2SB495	C03	1-102-962	30pF ceramic
Q11		transistor 2SB495	C04	1-102-972	91pF ceramic
Q201		transistor 2SC633	C05		— discarded —
D01		diode 1S351M	C06	1-102-953	18pF ceramic
D02		— discarded —	C07	1-101-918	0.001μF ceramic
D03		diode 1T2432	C08	1-102-947	10pF ceramic
D04		diode 1T23	C09	1-105-821-12	0.001μF mylar
D05		diode 1T261	C10	1-102-947	10pF ceramic
D06		diode 1T261	C11	1-102-951	15pF ceramic
D201		diode 1S1555	C12	1-102-943	6pF ceramic
D202		diode (SLED) GPR-1	C13	1-105-833-12	0.01μF mylar
Th01	8-691-002-11	thermistor CS-47	C14	1-101-923	0.01μF ceramic
IC	8-750-253	integrated circuit CX-025	C15	1-101-923	0.01μF ceramic
COILS AND TRANSFORMERS			C16	1-105-833-12	0.01μF mylar
L01	1-401-219	coil, antenna loading	C17		— discarded —
L02	1-425-449	coil, fm ant	C18	1-121-491	100μF 6.3V electrolytic
L03	1-425-667	coil, fm rf	C19		— discarded —
L04	1-405-491	coil, fm osc	C20	1-101-923	0.01μF ceramic
L05, L06	1-401-472	coil, mw/lw ferrite bar antenna	C21	1-101-923	0.01μF ceramic
L07	1-407-163	33μH, micro inductor	C22	1-102-949	12pF ceramic
L08	1-407-177	470μH, micro inductor	C23	1-101-923	0.01μF ceramic
L09	1-405-489	coil, mw osc	C24	1-103-732	2,000pF styrol
L10	1-405-490	coil, lw osc	C25	1-101-923	0.01μF ceramic
L11	1-407-177	470μH, micro inductor	C26	1-101-923	0.01μF ceramic
L12	1-407-161	22μH, micro inductor	C27	1-105-843-12	0.068μF mylar
L13	1-407-178	1μH, micro inductor	C28	1-102-958	20pF ceramic
L14	1-407-407	47μH, micro inductor	C29	1-102-947	10pF ceramic
L201	1-407-175	330μH, micro inductor	C30	1-103-614	360pF styrol
IFT A1	1-403-126	transformer, a-m i-f	C31	1-107-083	82pF mica
IFT F1	1-403-243-31	transformer, fm i-f	C32	1-105-837-12	0.022μF mylar
IFT F2	1-403-231-31	transformer, fm i-f	C33	1-101-923	0.01μF ceramic
IFT F3	1-403-243-31	transformer, fm i-f	C34		— discarded —
IFT F4	1-403-272-31	transformer, fm discriminator	C35	1-105-833-12	0.01μF mylar
IFT F5	1-403-273-31	transformer, fm discriminator	C36	1-105-839-12	0.033μF mylar
			C37		— discarded —
			C38	1-121-491	100μF 6.3V electrolytic
			C39		— discarded —
			C40	1-105-839-12	0.033μF mylar
			C41	1-101-923	0.01μF ceramic
			C42	1-105-833-12	0.01μF mylar
			C43	1-121-398	10μF 25V electrolytic

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>			<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		
C44	1-101-923	0.01 μ F		ceramic	C203	1-121-413	100 μ F	6.3 V	electrolytic
C45	1-105-839-12	0.033 μ F		mylar	C204	1-105-414-12	0.033 μ F		mylar
C46		— discarded —			C205		— discarded —		
C47		— discarded —			C206	1-102-973	100pF		ceramic
C48		— discarded —			C207	1-105-833-12	0.01 μ F		mylar
C49		— discarded —							
C50	1-121-398	10 μ F	25 V	electrolytic	CV01	1-151-196-12	capacitor,	tuning	
C51	1-121-491	100 μ F	6.3 V	electrolytic					
C52	1-105-833-12	0.01 μ F		mylar	CT01	1-141-022	capacitor,	trimmer	
C53	1-105-839-12	0.033 μ F		mylar	CT02	1-141-022	capacitor,	trimmer	
C54	1-102-939	2pF		ceramic	CT03	1-141-011	capacitor,	2-gang trimmer	
C55	1-105-833-12	0.01 μ F		mylar	CT04	1-141-127	capacitor,	2-gang trimmer	
C56	1-127-022	0.47 μ F	10 V	electrolytic (alox)					
C57	1-105-839-12	0.033 μ F		mylar					
C58		— discarded —							
C59		— discarded —							
C60	1-127-022	0.47 μ F	10 V	electrolytic (alox)					
C61	1-105-675-12	0.015 μ F		mylar					
C62	1-103-759	220pF		styrol					
C63	1-103-759	220pF		styrol					
C64	1-121-483	33 μ F	10 V	electrolytic					
C65	1-127-020	0.22 μ F	10 V	electrolytic (alox)					
C66	1-121-391	1 μ F	50 V	electrolytic					
C67	1-121-420	220 μ F	6.3 V	electrolytic					
C68	1-105-821-12	0.001 μ F		mylar					
C69	1-121-342	470 μ F	6.3 V	electrolytic					
C70	1-127-019	0.1 μ F	10 V	electrolytic (alox)					
C71	1-105-829-12	0.0047 μ F		mylar					
C72	1-105-829-12	0.0047 μ F		mylar					
C73	1-105-839-12	0.033 μ F		mylar					
C74		— discarded —							
C75	1-105-849-12	0.22 μ F		mylar					
C76	1-121-322	47 μ F	6.3 V	electrolytic					
C77	1-102-973	100pF		ceramic					
C78	1-121-342	470 μ F	6.3 V	electrolytic					
C79	1-121-491	100 μ F	6.3 V	electrolytic					
C80		— discarded —							
C81		— discarded —							
C82		— discarded —							
C83		— discarded —							
C84	1-102-973	100pF		ceramic					
C85		— discarded —							
C86	1-121-483	33 μ F	10 V	electrolytic					
C87	1-101-923	0.01 μ F		ceramic					
C88	1-102-939	2pF		ceramic					
C89	1-103-759	220pF		styrol					
C90	1-102-973	100pF		ceramic					
C91	1-101-923	0.01 μ F		ceramic					
C92	1-102-973	100pF		ceramic					
C94	1-105-849-12	0.022 μ F		mylar					
C95	1-102-939	2pF		ceramic					
C96	1-121-342	470 μ F	6.3 V	electrolytic					
C201	1-101-876	39pF		ceramic					
C202	1-121-398	10 μ F	25 V	electrolytic					

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>		

RESISTORS

All resistors are $\frac{1}{4}$ W $\pm 5\%$ carbon type resistors unless otherwise noted.

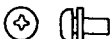
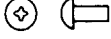
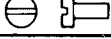
R01		— discarded —
*R02	{	1-240-517 68 k Ω
		1-240-522 110 k Ω
		1-240-525 150 k Ω
R03		1-240-497 10 k Ω
R04		1-240-497 10 k Ω
R05		1-240-475 1.2 k Ω
R06		1-240-521 100 k Ω
R07		1-240-453 150 Ω
R08		1-240-476 1.3 k Ω
*R09	{	1-240-491 5.6 k Ω
		1-240-497 10 k Ω
R10		1-244-672 910 Ω
R11		1-244-658 240 Ω
R12		1-244-717 68 k Ω
R13		1-244-728 200 k Ω
R14		1-240-473 1 k Ω
R15		1-240-440 43 Ω
R16		1-240-475 1.2 k Ω
R17		1-210-362 220 Ω
R18		1-240-464 430 Ω
R19		1-240-509 33 k Ω
R20		1-244-649 100 Ω
R21		1-240-473 1 k Ω
R22		1-240-464 430 Ω
R23		1-240-453 150 Ω
R24		1-240-497 10 k Ω
R25		1-240-525 150 k Ω
R26		1-240-522 110 k Ω
R27		1-240-512 43 k Ω
R28		1-240-473 1 k Ω
R29		1-240-464 430 Ω
R30		1-240-507 27 k Ω
R31		1-240-458 240 Ω
R32		1-240-473 1 k Ω
R33		1-240-528 200 k Ω
R34		— discarded —
R35		1-240-490 5.1 k Ω

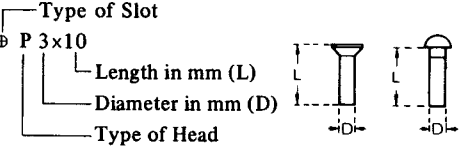
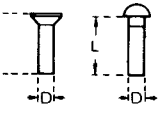
<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
R36	1-240-466	510 Ω	R69	1-244-642	51 Ω
R37	1-240-488	4.3 k Ω	R70		— discarded —
R38	1-240-449	100 Ω	R71		— discarded —
R39	1-240-449	100 Ω	R72	1-240-461	330 Ω
R40	1-240-497	10 k Ω	R73	1-244-677	1.5 k Ω
R41		— discarded —	R74	1-244-628	13 Ω
R42	1-240-484	3 k Ω	R75		— discarded —
R43	1-240-518	75 k Ω	R76	1-204-123	3.3 k Ω
R44	1-240-473	1 k Ω	R77		6.8 k Ω
R45	1-240-467	560 Ω	R78	1-201-870	330 Ω $\frac{1}{8}$ W composition
R46	1-210-115	100 k Ω $\frac{1}{16}$ W carbon	R79	1-240-461	330 Ω
R47	1-240-456	200 Ω	R80	1-244-734	360 k Ω
R48	1-240-473	1 k Ω			
R49	1-240-473	1 k Ω	R201		— discarded —
R50	1-240-461	330 Ω	R202	1-240-449	100 Ω
R51	1-240-493	6.8 k Ω	R203	1-210-376	16 k Ω
R52	1-240-493	6.8 k Ω	R204	1-209-774	5.1 k Ω
R53		— discarded —	R205	1-210-385	51 k Ω
R54	1-240-473	1 k Ω	R206	1-210-355	100 Ω
R55	1-244-712	43 k Ω			
R56	1-244-661	330 Ω	VR01	1-222-284	variable resistor, TONE; 5 k Ω
R57	1-244-656	200 Ω	VR02	1-222-231	variable resistor, VOL; 5 k Ω
* R58	1-244-667	560 Ω			
	1-244-672	910 Ω			
	1-244-675	1.2 k Ω			
R59	1-244-609	2.2 Ω			
R60	1-244-683	2.7 k Ω			
R61	1-244-670	750 Ω			
R62	1-240-419	5.6 Ω			
R63	1-244-653	150 Ω			
R64	1-240-479	1.8 k Ω			
R65	1-240-464	430 Ω			
R66		— discarded —			
R67	1-244-605	1.5 Ω			
R68	1-240-436	30 Ω			

MISCELLANEOUS

TEL ANT	1-501-124-12	antenna, telescopic
SP	1-502-267	speaker
S01	1-514-546-13	switch, antenna select
S02	1-513-279	switch, band select
S03		switch, lamp
S04	1-514-546-13	switch, AFC
S05	1-514-763-12	switch, power
PL	1-518-051-12	lamp
J	1-507-332	jack, triple
	1-581-310-12	printed circuit board, main
	1-581-311-11	printed circuit board, resonance indicating

— Hardware Nomenclature —

P — Pan Head Screw		SC — Set Screw	
PS — Pan Head Screw with Spring Washer		E — Retaining Ring (E Washer)	
K — Flat Countersunk Head Screw		W — Washer	
B — Binding Head Screw		SW — Spring Washer	
RK — Oval Countersunk Head Screw		LW — Lock Washer	
T — Truss Head Screw		N — Nut	
R — Round Head Screw			
F — Flat Fillister Head Screw			

— Example —	
	

When ordering replacement parts you should use **PART NUMBER** listed on the Parts List or shown in the Exploded View.
The reference number should not be used for ordering purposes.